Wetlands in the Connecticut River Floodplain: an important carbon source?

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Floodplains are heterogeneous landscapes with respect to soil and sediment composition and stability of sediment-associated carbon. *One important* contribution to this floodplain heterogeneity is provided by the meandering course of streams: moving water erodes the (outer) cut banks while the lower flow energy inside bend is characterized by sediment deposition (Friedkin 1945; Hooke 2013). This process gradually increases bend curvature until the stream bypasses the narrowing curves and leaves part of the original channel abandoned which then persist as oxbow lakes or swamps. Abandoned channels exhibit a very different composition and reactivity than the active channel sediment and adjacent soils: they are rich in organic matter and exhibit different biogeochemical cycling due to reducing conditions at depths. Because old channels are often hydrologically connected to the active channel, these swamp deposits are impacted by floods and can contribute to the stream metal and C load. In order to assess the concentration and characteristics of water soluble (mobile) C and metals from such wetlands, we extracted the water soluble fraction of samples from two depth profiles of wetlands in the Connecticut River Floodplain.

Double deionized water was added to air dried soils in a solid solution ratio of 1:5, placed on a shaker for 24 hours, centrifuged and filtered to separate particulate from dissolved matter. Dissolved organic and inorganic carbon as well as dissolved nitrogen concentrations were determined with a Shimadzu C analyzer. To determine character and origin of dissolved organic matter, samples were also measured with the Aqualog Fluorescence Spectrometer. Metal concentrations were measured with a Perkin Elmer ICP-OES. Results will provide important information on the contribution of meander wetlands to C and metals in the Connecticut River Floodplain and can help to make predictions for their export during flooding.